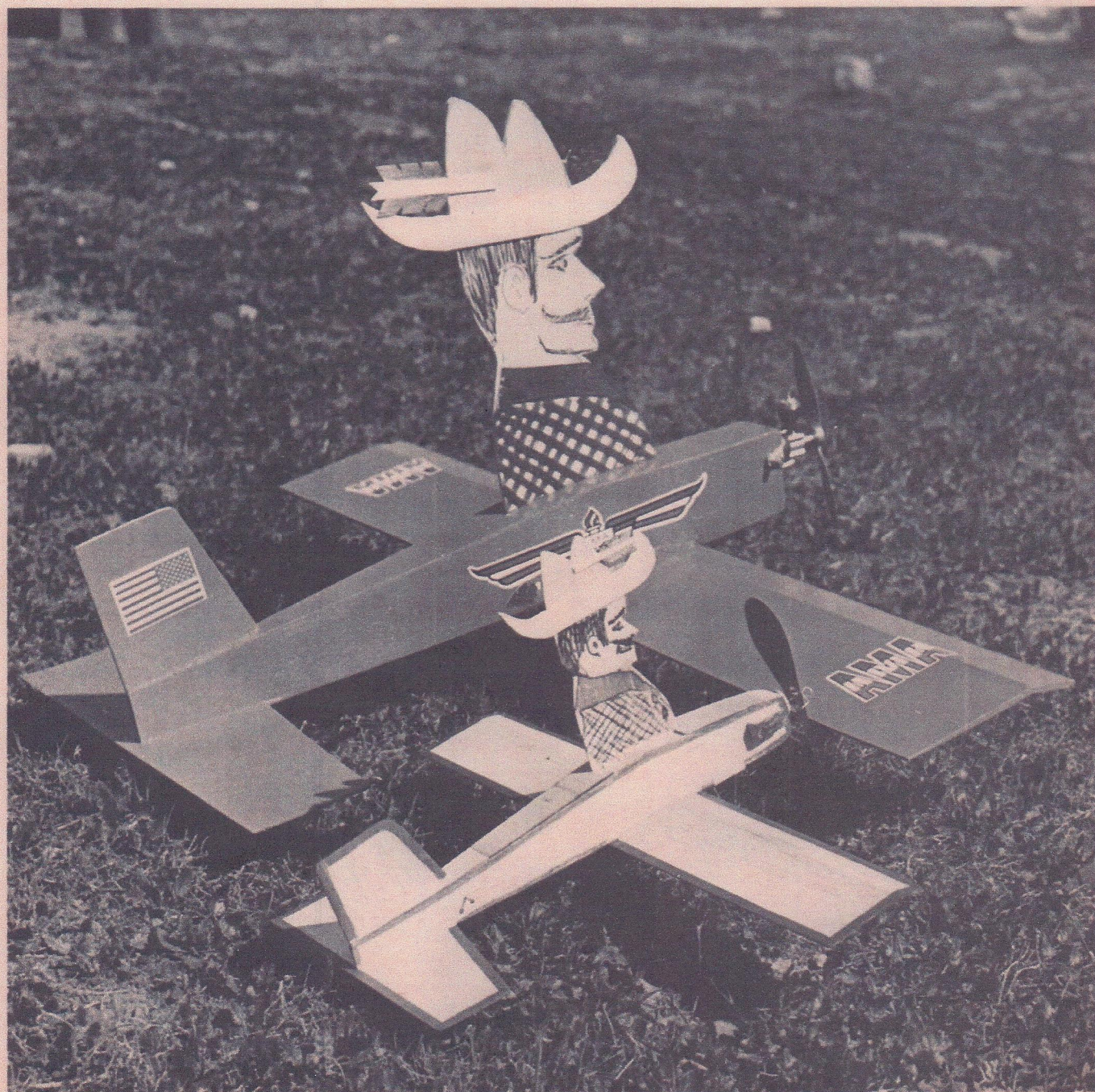


Tenderfoot Tom

PILOT CHARACTER ACTUALLY GIVES THIS MODEL ALL THE STABILITY IT NEEDS. YOU CAN BUILD GAS OR RUBBER MODEL FROM THESE PLANS.

by WALT MOONEY



Tenderfoot Tom and his airplane were evolved to help the newcomer in model aviation get started along the road to flying fun. Originally, it was intended that the model should be a simple sheet balsa, rubber-powered plane. The concept worked so well that subsequently it was suggested that it be applied to a sport gas FF. It works fabulously there too!

Older hands in the model rustlin' game will immediately notice that neither version has the slightest bit of dihedral: in fact, the wing of the little model actually sags a tiny bit. They will shake their heads and mutter, "No pilot could stay in that kind of saddle." Ah! But they don't know what a great wrangler our pard Tenderfoot Tom is. Without the pilots, these little models are truly impossible to fly free flight. U-Control, yes; but free flight? Not a chance.

With Tom aboard, these models are really easy to fly safely and should do well for even the tenderest of tenderfeet. It's been the experience of most beginners that dihedral joints are hard to make, so we have eliminated them completely and use a perfectly straight wing from one tip to the other. To keep the model from spiral diving and biting the dust, a pilot is provided. He is actually a forward fin—and he does a superb job.

The rubber model is capable of flights exceeding 30 seconds; the gas job will climb up almost out of sight on a full tank. It will do beautiful unassisted ROG takeoffs and glide down to perfect landings. It was built in three hours, one of which was spent waiting for two coats of paint to dry.

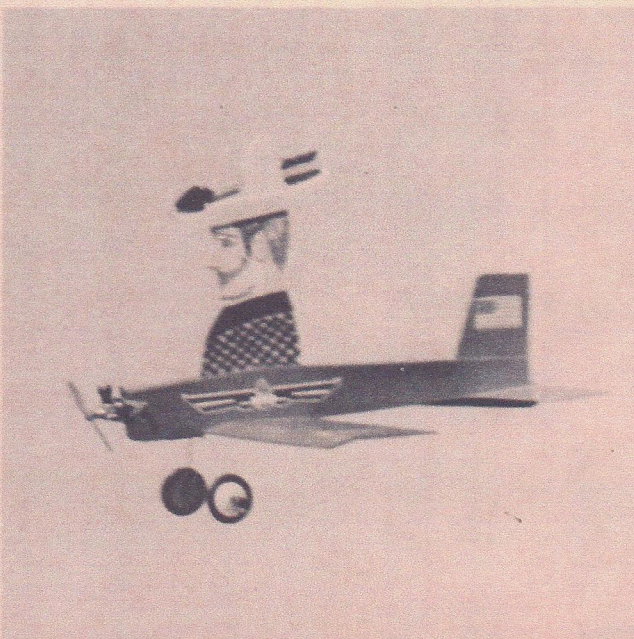
Our Agressive Scandinavian (forward fin) is not a new idea for providing spiral stability. To give credit where credit is due requires an admission that it was invented, and used on a hand-launched glider in the late 1800s, by an illustrious gentleman named Lanchester. It worked then and it works now.

Construction

The cutaway drawing shows all the pieces in a disassembled arrangement. Note the direction of the grain in the balsa pieces. Only half of the wing is shown—so when it's made it is 13 in. long. The following instructions are for the rubber-powered model. The dimensions of the gas-powered model are simply doubled except at the nose, which will be covered later.

Cut out all the balsa parts. Cement the wing parts together to give the angled airfoil section shown. Lay it on a piece of waxed paper and block up one edge so it will dry at the proper angle.

Construct the nose block from a piece of $\frac{1}{2}$ " thick balsa with the grain as shown; make a hole in it to fit a hardwood nose plug. Cement the two sides to the nose block after first poking the rear peg holes in the sides and the



centers of the bulkheads, and then cementing the centers (circular discs) to the sides as reinforcements. Make sure the front edges of the sides come exactly to the front of the nose block. Now cement the two bulkheads in place and let this assembly dry.

Decorate Tenderfoot Tom with a felt pen *after* giving him a very light coat of dope or sanding sealer on both sides. Cement the hat brim on both sides of the pilot, tips together. Cement the pieces of the arrow to the crown as if Indians had shot it through the hat. Bend the landing gear wire. Install the wheels on the wire, using a drop of cement (be careful not to get any cement on the wheels).

Now cement the wing in place on the assembly of the two fuselage sides, two bulkheads and noseblock. Cement the front bottom in place, and the top covering in place as far back as the second bulkhead. Let this dry.

While it's drying, install the propeller on the hardwood thrust bearing, using 1/32 diameter wire for the hook and a couple of thin washers or sequins for bearings, and a 4" diameter plastic propeller. Note the loop in the wire at the front of the propeller which will make winding with a winder easy.

Now cement the tail end of the fuselage sides together. They can be held in place with straight pins. Cement the horizontal tail in place and then the top and bottom of the rest of the fuselage. It helps to leave about a half inch of the bottom uncovered directly under the rear peg so the rubber is visible at this end when installing the motor. When dry, sand this assembly and then add the vertical tail, ventral fin and the pilot. Make sure that these three pieces are vertical and parallel to the centerline of the fuselage. This is the most important operation during construction of the model: if these parts are not properly lined up, the model will be harder to adjust.

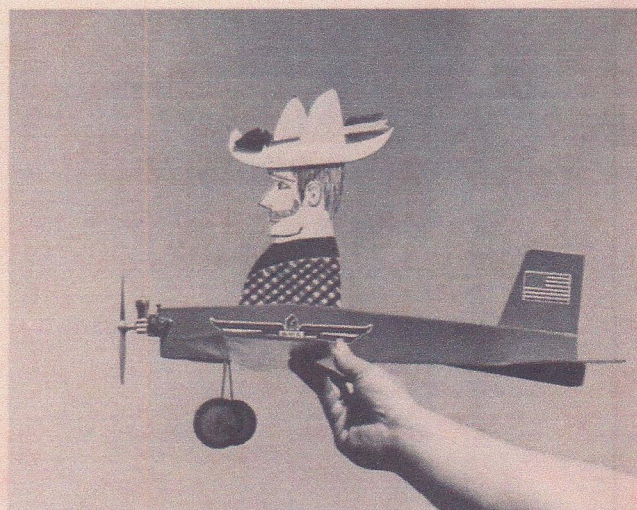
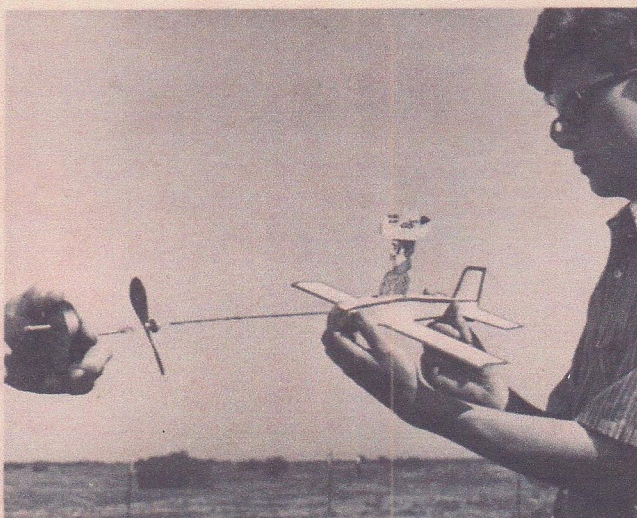
The dummy cylinders are only for appearance, so add them now if desired. A very light coat of sanding sealer or dope all over the model is now in order. The original model was given one light spray coat of Magic Brand sanding sealer. Now lightly sand all the fuzz off the model and decorate it as desired with felt pen. The landing gear is held on with a short piece of masking tape.

Install a loop of 1/8 flat rubber ten in. long. Check to see that the balance point is at the proper place: if not, add weight at the nose or tail to make it balance and Tenderfoot Tom is ready to fly. Bending the trailing edge of the rudder in one direction or the other will make the model turn as desired.

Construction of the gas version is identical except for the details necessary for the rubber motor and the nose. Because of the weight of the O20 engine, the nose has to be shorter for balance.

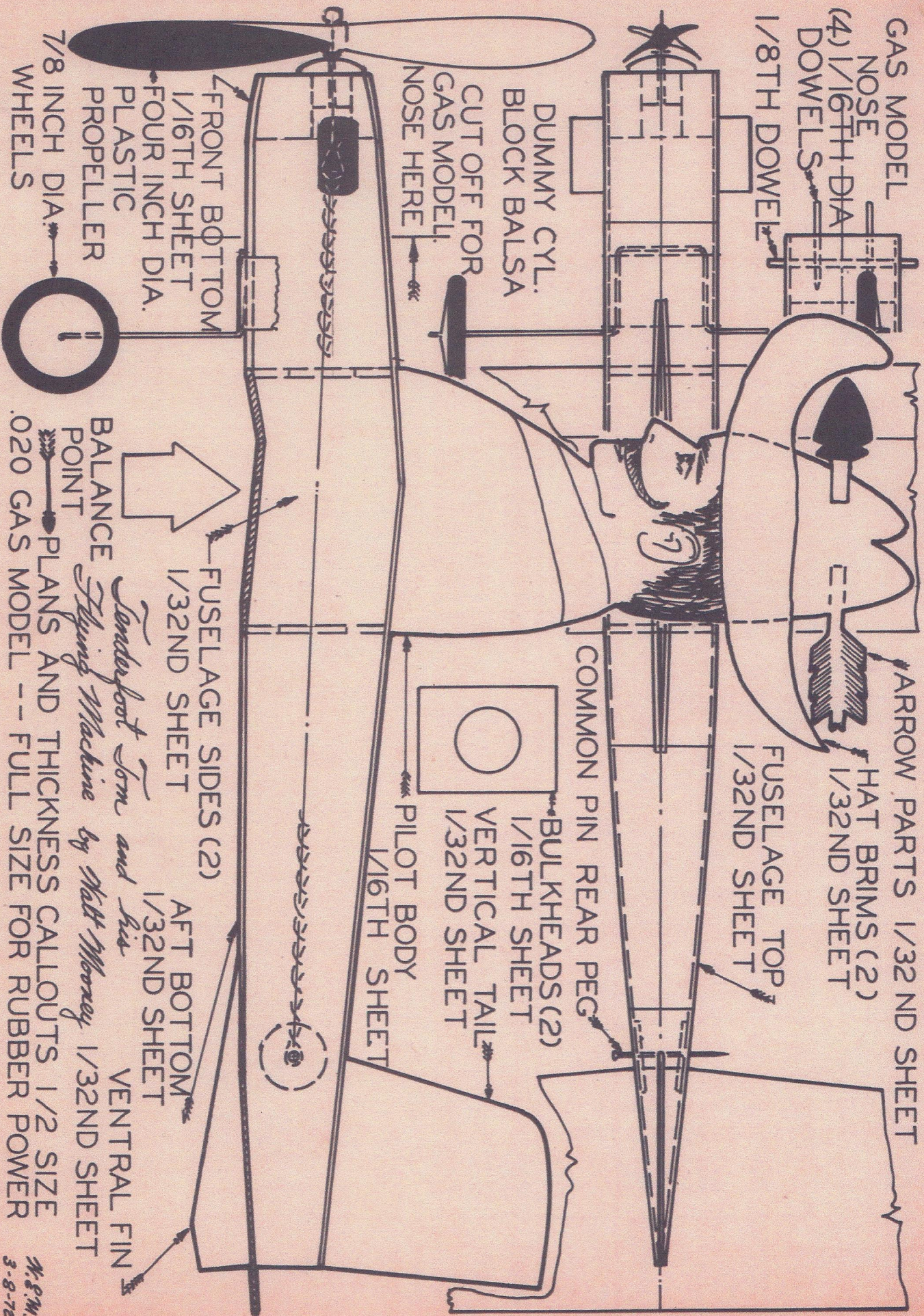
Using the motor as a guide, push four sharpened dowels into the nose block to locate the motor. It should be located fairly close to the top of the block. Drill a 1/8" diameter hole through the nose crosswire of the fuselage and install the 1/8 dowel. The engine is held on with several small rubber bands. This was done to make thrust adjustments easy. However, no adjustments of any kind were required on the model in the photos. After the first couple of flights, a slight tweak of left rudder was added to keep the glides from being so straight.

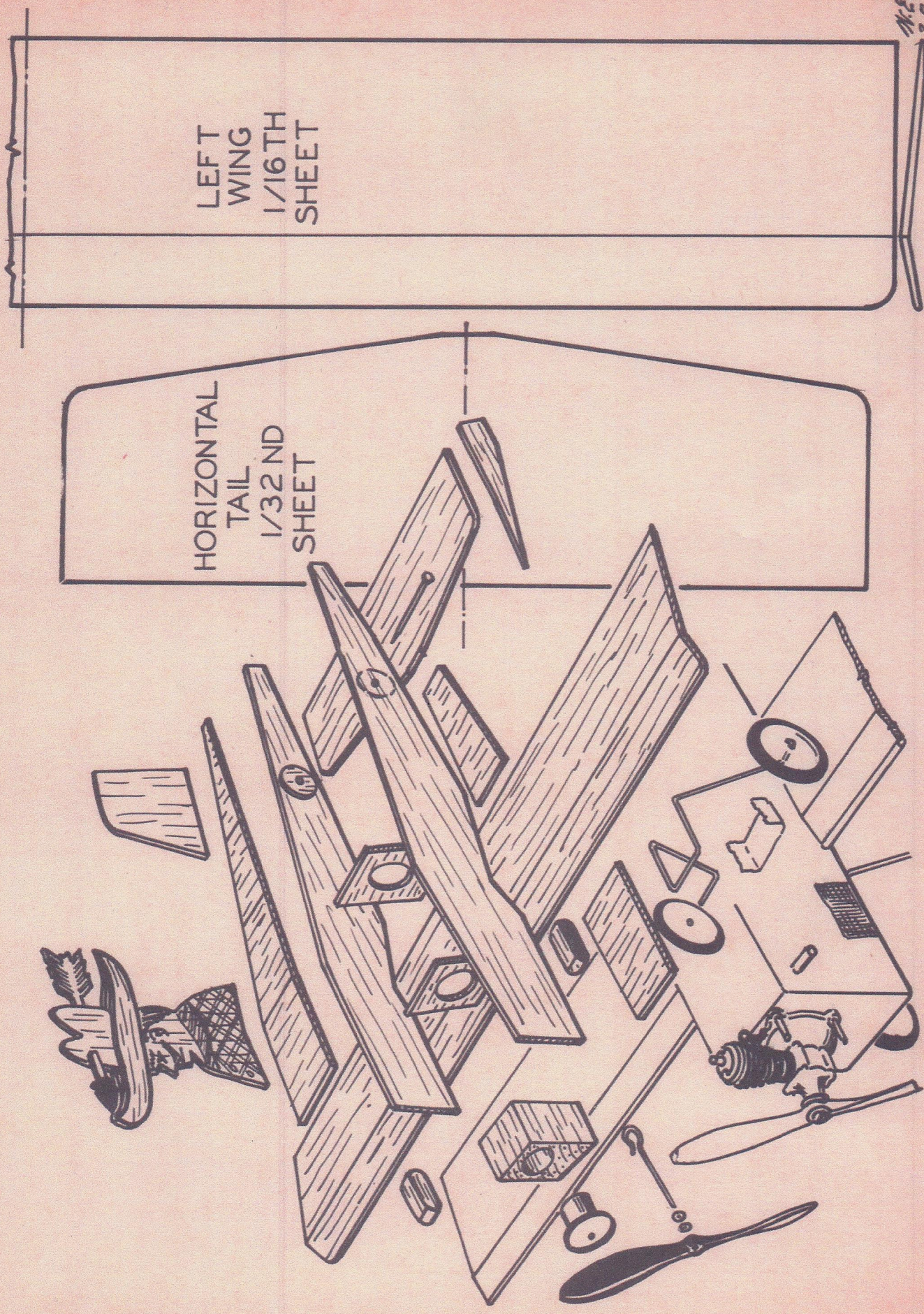
The gas model needs to be fuelproof, so give it a couple of coats of fuel-proof paint before it's flown.



Curtis Mooney holds while his dad winds up the rubber-powered version of Tenderfoot Tom.

Both sizes of T-Tom are all balsa. Note here the simple but very effective wing airfoil.





11-2-71
3-8-72